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(54) Title: COMPUTER NETWORK VALUE PAYMENT SYSTEM (57) Abstract <p>A system of employing computer networks includes the creation of electronic data representing monetary funds in accounts in an electronic bank of users of the network and the simultaneous debiting of the users' accounts with a service provider. The users can then use the created electronic monetary funds to purchase items from merchants connected to the network who will accept payment in such electronic monetary funds. The merchants, in turn, can exchange the electronic monetary funds to receive amounts of specific currencies from the electronic bank or they may use the electronic monetary funds to purchase items from other merchants connected to the network who will accept payment in such electronic monetary funds.</p>		

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- 1 -

"COMPUTER NETWORK VALUE PAYMENT SYSTEM"FIELD OF THE INVENTION

5 This invention relates to methods of employing computer networks and, more particularly, to a method for purchasing goods or services or both from certain vendors thereof by the transferring of data over a computer network to those vendors.

DESCRIPTION OF THE RELATED ART

10 Computer networks interconnecting a large number of computers owned by different users are proliferating at an ever accelerating rate. One extremely popular and well known network is the Internet which links many hundreds of thousands of computers owned by almost as many businesses, educational institutions, governmental agencies, and individuals.

15 There has been much interest of late in using the Internet and other computer networks to conduct ordinary commerce or, in other words, to purchase and sell goods and services. Of course, to conduct such commerce in an efficient and practical matter, some efficient means is necessary to transfer funds or fund equivalents over the networks and to date this has been an unfulfilled need - particularly where there are a substantial number of small and diverse transactions.

20 Many companies worldwide have been working to develop such an electronic cash system. Most of the systems being developed at present rely on credit cards or access to bank accounts to provide the original source of electronic funds. A principal objection to such systems raised by consumers and tradepersons is a perceived lack of security. With the widespread news reports about systems' vulnerability to "hacking" or eavesdropping, credit cards and bank accounts are viewed as easy targets for misuse or outright theft.

30 Since the Internet network comprises many hundreds of thousands of computers connected throughout the world and the user's computer cannot determine the particular path which the user wishes any information to take in travelling to the merchant's computer, in a worst cast scenario, it must be

- 2 -

assumed that a third party is "listening" to any information passing between the user's computer and the merchant's computer. This represents a number of significant problems from a security or cryptographic point of view. For example, if the user was to transfer his or her private financial details, such as credit card numbers or bank account numbers, it would be possible for a third party to intercept this information and then utilize it to the detriment of the user or the merchant (also referred to as the vendor).

One proposed form of providing security in transferring the information between the user's computer and the merchant's computer is to transfer the information in an encrypted form. However, various government regulatory authorities are extremely sensitive about allowing encryption algorithms into general public use as they are likely to substantially hinder the detection of activities which may be criminal or otherwise harm the State. Therefore, encryption algorithms are often strictly controlled and restricted to "crackable" systems being released to the general public.

A second problem with such an arrangement is that, should the user's computer or the merchant's computer be compromised by a hacker breaking into the system, the utilization of such devices as device key recorders can lead to the capture of various passwords or other sensitive information. Therefore, even if sufficiently strong encryption algorithms were in general use, compromise of computer systems would still be of significant concern and hindrance to the development of commerce on computer networks.

The present invention makes substantial progress in solving these security problems by creating electronic funds for a user in preferably small amounts without employing or in any way disclosing his or her financial assets or credit capabilities in combination with security measures employed to prevent the unauthorized use or theft of the electronic funds created. The small value of the "target" electronic funds as well as the security measures employed will combine to make security breaches the system impractical or, at the very

- 3 -

least, economically inconsequential. Thus, a user is only "at risk" for an amount which he or she determines. The denominations of electronic funds in a user's account can vary, but preferably will be more than sufficient to permit a system making marketable over the Internet paid news and information services such as magazines, newspapers, and other copyrighted works for which transactional costs between subscribers and providers were heretofore not economically viable. The present invention is aimed at alleviating at least one of the aforementioned problems and thus has as its object to provide a method of employing computer networks that will be secure against major fraud and theft.

It is a further object of the present invention to allow computer users to create electronic funds on their computers with those computer users subsequently being billed for the electronic funds created by a telecommunications services provider or a credit card company.

It is a further object of the present invention to allow computer users with electronic funds created on their computers to employ those electronic funds to purchase goods or services from vendors with computers connected to the networks who accept those electronic funds as a means of payment.

It is a yet further object of the present invention to allow vendors receiving those electronic funds to exchange them for a specified currency with an electronic bank or allow the vendors to employ those electronic funds to purchase goods or services from other vendors with computers connected to the networks who accept those electronic funds as a means of payment.

It is a still further object of the present invention to provide each credit or debit of electronic funds with a set of associated identifying indicia to prevent theft or misuse of the amount credited or debited.

SUMMARY OF THE INVENTION

With the foregoing in mind, the present invention in one

- 4 -

aspect resides broadly in a method of employing one or more networks of computers, said method including:

5 creating with respect to a computer of a user connected to said one or more networks, a first data structure corresponding at least in part to a first amount of monetary funds;

 debiting an account of said user with a service provider, preferably a telecommunications service provider, in a second amount related to said first amount of monetary funds;

10 crediting an account of said user with an electronic bank in a third amount related to said first amount of monetary funds; and

 said user purchasing via said one or more networks using at least a part of said first amount of monetary funds, an item offered for sale by a first merchant via a computer connected to said one or more networks, said merchant participating in said method of conducting commerce.

 Preferably said data structure includes a unique transaction identifier and said electronic bank account is credited by storing said unique transaction identifier in said account. Advantageously, such unique transaction identifier reduces the risk of fraud or theft. Preferably, said unique transaction identifier includes a serial number derived at least in part from one or more characteristics of said user's hardware, such as hard disk number or modem number. The identifier may also be derived in part from the user's telephone number. It is also preferred that said identifier be in encrypted form.

30 In most cases said first, second and third amounts will be equal, although in some cases it is believed that additional charges may be levied so that some variation may occur.

 In a preferred form of the invention, said service provider is a telecommunications services provider, and preferably one that has an already established relationship with the user such as providing telecommunications services to said user. Preferably, the user's account is debited via a

- 5 -

"pay per call" telephone number established via the user's modem. Advantageously, such service provider can debit said account of the user in said second amount and include this amount on the user's monthly telephone bill. In other forms of the invention the service provider may be a credit card service provider or other funding organisation and credit card information may be electronically transferred from said user's computer to a computer of said credit card service provider. It will be seen that the service provider can pay to said electronic bank a sum of money related to said second amount, which may be equal to said second amount less a fee charged by said service provider to said electronic bank. The electronic funds can then be used to purchase goods or services or both from those vendors with computers connected to the network which offer goods or services for sale, and have agreed to accept payment in the form of the electronic funds. The interposition of the electronic bank between the user and the vendor is transparent to the user, i.e., the user has direct access via the network, preferably the Internet, to the vendor, preferably using the telecommunications service provider lines. Each vendor can then, if it chooses to do so, use any electronic funds which it accepted from users to in turn purchase goods or services from other vendors connected to the network, or the electronic funds may be exchanged by the vendor for an amount of a specified currency from the electronic bank.

Preferably, the method includes the step of distributing software for down loading onto said computer of said user, said software enabling said computer of said user to perform the portion of the method necessary to be performed by said user's computer for said user to participate in the method as previously described in its broadest form. However, it is preferred that the software also enable the user to participate in the preferred forms of the method described hereinafter.

Preferably, the method includes the step of distributing software so that said first merchant is able to down load said

- 6 -

software onto said computer of said first merchant, said software enabling said computer of said first merchant to perform the portion of the method necessary to be performed by said computer of said first merchant for said first merchant to participate in the method as previously described in its broadest form. Preferably, said user software and/or said merchant software is assigned a unique user software identifier or merchant software identifier as the case may be derived at least in part from one or more characteristics of said user or first merchants hardware respectively.

In another aspect the invention resides broadly in a method of employing one or more networks of computers, said method including:

creating with respect to a computer of a user connected to said one or more networks, a first data structure corresponding at least in part to a first amount of monetary funds;

debiting an account of said user with a service provider, preferably a telecommunications service provider, in a second amount related to said first amount of monetary funds;

crediting an account of said user with an electronic bank in a third amount related to said first amount of monetary funds;

said user purchasing via said one or more networks using at least a part of said first amount of monetary funds, an item offered for sale by a merchant via a computer connected to said one or more networks, said merchant participating in said method of conducting commerce; said step of said user purchasing said item further including reading a product key indicative of said item offered for sale by said merchant via said computer of said user, said product key being present at a web site of said merchant; using said product key to create a purchase identifier such as a serial number; and submitting said purchase identifier to said electronic bank for approval of said purchase. Preferably, said purchase identifier is derived at least in part from the price of said item purchased and preferably also in part from one or more characteristics

- 7 -

of said user's hardware, such as hard disk number. Preferably, upon approval of said purchase being given by said electronic bank, said step of purchasing said item further comprises the steps of creating a sale identifier indicative of said price of said item; creating a user account balance identifier indicative of a balance remaining in said account of said user with said electronic bank after deducting an amount related to said price from an amount in said account, said account balance identifier being derived at least in part from one or more characteristics of said user's hardware; crediting an account of said first merchant with said electronic bank in an amount related to said price by storing said sale identifier in said account of said first merchant with said electronic bank; and debiting said account of said user with said electronic bank in an amount related to said price by storing said user account balance identifier in said account of said user with said electronic bank.

Preferably, said amount deducted from said account of said user, said amount credited to the account of said merchant and said amount debited to the account of said user are equal to said price. Preferably, also said sale identifier and said user account balance identifier are serial numbers. It will be seen that the electronic bank can pay a sum of money to said first merchant equal to the price of said item purchased from said first merchant less a fee charged by said electronic bank to said first merchant for facilitating the transaction.

In another aspect, the invention resides broadly in a method of employing one or more networks of computers, said method including:

creating with respect to a computer of a user connected to said one or more networks, a first data structure corresponding at least in part to a first amount of monetary funds;

debiting an account of said user with a service provider, preferably a telecommunications service provider, in a second amount related to said first amount of monetary funds;

- 8 -

crediting an account of said user with an electronic bank in a third amount related to said first amount of monetary funds;

5 said user purchasing via said one or more networks using
at least a part of said first amount of monetary funds, an
item offered for sale by a merchant via a computer connected
to said one or more networks, said merchant participating in
said method of conducting commerce; creating a merchant
account balance identifier indicative of a balance remaining
10 in said account of said first merchant with said electronic
bank after deducting an amount equal to said price of said
item purchased from an amount in said account, said merchant
account balance identifier being derived at least in part from
one or more characteristics of said first merchants hardware
15 and debiting an account of said first merchant with said
electronic bank in an amount equal to said price by storing
said merchant account balance identifier in said account of
said first merchant with said electronic bank.
Advantageously, such form of the invention reduces the
20 likelihood of fraud or theft.

In yet another aspect, the invention resides broadly in a method of employing one or more networks of computers, said method including:

25 creating with respect to a computer of a user connected
to said one or more networks, a first data structure
corresponding at least in part to a first amount of monetary
funds;

30 debiting an account of said user with a service provider,
preferably a telecommunications service provider, in a second
amount related to said first amount of monetary funds;

crediting an account of said user with an electronic bank in a third amount related to said first amount of monetary funds;

35 said user purchasing via said one or more networks using
at least a part of said first amount of monetary funds, an
item offered for sale by a merchant via a computer connected
to said one or more networks, said merchant participating in

- 9 -

said method of conducting commerce; said first merchant obtaining a merchant identification code from said electronic bank; said electronic bank creating a product key describing said item offered for sale; said electronic bank creating a payment page, said payment page being linked to a web site main page of said first merchant;

said electronic bank linking said product key to said payment page; and said first merchant creating a "payment accepted" web page, said "payment accepted" web page being linked to said payment page. Preferably, said first merchant links a document to be displayed if payment by said user is accepted by said electronic bank to said "payment accepted" web page. Preferably,

said product key includes said merchant identification code, an indicator of the description of said item offered for sale, and an indicator of the price of said item offered for sale.

The existence of the electronic bank as an intermediary provides the benefit of central and uniform recording and verification of all transactions from any number of service providers, vendors, and users, many of whom may be using diverse and incompatible telecommunications protocols. The use of the various identifiers or keys previously described is beneficial in reducing the likelihood of fraud or theft, particularly when one or more of said identifiers are in encrypted form.

The method is useful in any purchase, but is particularly useful in purchasing relatively low cost informational or entertainment services, such as digital magazines or newspapers, news programs, on-line universities, and financial information such as stock, bond, commodities or other market quotes. In addition, entertainment services may be purchased, such as interactive games against computers or human opponents, games of chance, pay per view video, or CD-ROM entertainment, including current release movies. The potential applications of this method in commerce are only limited by the vendor's imagination and economic ingenuity.

- 10 -

In order that the invention may be more readily understood and put into practical effect reference will now be made to the accompanying drawings and the following description of preferred embodiments of the invention which are meant by way of illustration and example only, and are not to be construed as in any way limiting the invention disclosed and claimed herein, whereupon the aforementioned and other objects and advantages of the present invention will become more apparent to those of ordinary skill in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic diagram showing the elements of a commercial transaction over the Internet;

Fig. 2 is a schematic diagram showing the method of acquiring an account for making commercial purchases over the Internet;

Fig. 3 is a schematic diagram showing the method of acquiring electronic funds and the method of notifying the electronic bank of the acquisition of those funds according to the preferred embodiment where the user is subsequently billed for those electronic funds by a telecommunications services provider;

Fig. 3a is a schematic diagram showing the process of billing and payment necessary to finance electronic funds created using a telecommunications services provider;

Fig. 4 is a schematic diagram showing the method of acquiring electronic funds according to a preferred embodiment where the user is subsequently billed for the electronic funds by a credit card company;

Fig. 4a is a schematic diagram showing the process of billing and payment necessary to finance electronic funds created using a credit card company;

Fig. 5 is a flow chart showing the steps needed for a merchant to sell goods or services over the Internet;

Fig. 6 is a reproduction of a web site main page for a hypothetical merchant selling a service;

Fig. 6a is a reproduction of a web site main page for a hypothetical merchant selling goods;

- 11 -

Fig. 7 is a reproduction of a payment page for the hypothetical merchant whose web site main page was reproduced in Fig. 6;

5 Fig. 7a is a reproduction of a payment page for the hypothetical merchant whose web site main page was reproduced in Fig. 6a;

Fig. 8 is a flow chart showing the process whereby the electronic bank determines whether to approve a particular payment from a user to a merchant;

10 Fig. 8a is a schematic diagram showing the method whereby the appropriate electronic funds are credited or debited as a result of the approval by the electronic bank of a particular payment from a user to a merchant;

15 Fig. 9 is a reproduction of a web page displayed for the hypothetical merchant whose web site main page was reproduced in Fig. 6 if payment is approved by the electronic bank;

Fig. 9a is a reproduction of a web page displayed for the hypothetical merchant whose web site main page was reproduced in Fig. 6a if payment is approved by the electronic bank;

20 Fig. 10 is a partial reproduction of the document displayed by the hypothetical merchant whose web site main page was reproduced in Fig. 6a if the button reproduced in Fig. 9 is "clicked" or otherwise designated by a mouse or some other designating instrument;

25 Fig. 11 is a schematic diagram showing the process of payment necessary after a particular purchase of a user from a merchant; and

30 Fig. 11a is a schematic diagram showing the data transfer necessary in conjunction with the process of payment illustrated in Fig. 11.

DESCRIPTION OF THE PREFERRED EMBODIMENT

35 In the preferred embodiment of the present invention, which we will sometimes refer to by the coined term "the CYBANK system" in which CYBANK refers to an electronic bank, an agreement is first made between the electronic bank and a service provider, preferably a telecommunications services provider. This agreement establishes the means by which funds

- 12 -

can be created for use by users of the CYBANK system and the means by which the electronic bank and the service provider share revenue. Such means, for example, are by use of a "pay per call" telephone number whereby a caller incurs a specific charge, preferably for a relatively small amount, such as \$5.00, \$20.00, or \$50.00, which is debited to the caller's telephone bill and, at the same time, a credit of electronic funds in the same amount, hereinafter sometimes referred to as "electronic funds", is credited to the caller's account on the CYBANK computer. (Such "pay per call" telephone numbers are similar to the 0055 numbers available in Australia from Telstra.) The amount charged to the caller's telephone bill is shared in a pre-arranged proportion between the telecommunications services provider and the electronic bank after payment by the caller.

The service provider is preferably a telecommunications services provider. This facilitates the method by which the credit of electronic funds is acquired over the telephone lines and the method of billing the recipient of the electronic funds using the established billing mechanism of the telecommunications services provider. However, other entities having the ready ability to handle multiple transactions may also be service providers. For example, a bank, credit card company, or other financial institution would readily be capable of establishing such "pay per call" telephone numbers and then billing callers for any credit of electronic funds involved. Indeed, any business organisation which has or can create such a financial services capability could become a service provider as contemplated and disclosed herein. Thus, the references herein to a telecommunications services provider are only exemplary.

In addition, the use of a "pay per call" telephone number to create a credit of electronic funds to a caller's account on the CYBANK computer is also exemplary only. The use of a credit card of a user to finance the creation of such electronic funds is also within the scope of the invention disclosed herein and will be further described below.

- 13 -

CYBANK is preferably the financial link between businesses offering their goods or services via a computer network and those businesses' customers by acting as an intermediary to coordinate and facilitate transactions necessarily involving the businesses, their customers, and various telecommunications services providers. The role of and necessity for CYBANK or its equivalent in computer network financial transactions will become more apparent from the following description.

For a form of transaction as it is normally carried out over the Internet, we turn to the drawings. In Fig. 1, the arrangement illustrated 1 includes a user's computer 2 on which a user, desiring to carry out a transaction across the Internet network 4, accesses a valid Internet network account typically provided by one of many Internet Service Providers and associated networking software such as a World Wide Web (WWW) browser provided by Netscape or the like. At a remote location accessible by the Internet 4, there exists a merchant's computer 3 wherein a merchant willing to provide goods or services installs corresponding applications which can be accessed by the user's computer 2. These applications may consist of various WWW interactive programs for the entry of information details which will form the basis of the transaction between a user and merchant.

Referring now to Fig. 2, in the preferred embodiment, a computer user desiring to employ the CYBANK system to purchase goods or services will first utilise his or her computer 2 to locate the CYBANK system web page 5 on the Internet 4. The computer user will use a WWW reader or other convenient means to download the CYBANK system software 6 at minimum cost or free of charge from the CYBANK system web page 5 to the user's computer 2.

As part of the process of installing the CYBANK system software 6 on the user's computer, the CYBANK system software 6 examines the user's hardware setup including, for example, the modem number, telephone number, and hard disk number, and creates a unique encrypted identifier (user ID) 7 and which

- 14 -

performs the function of identifying the user's CYBANK account.

Once the CYBANK system software 6 has been installed on the user's computer 2, the user must run a setup procedure in order to establish a unique password (user's PIN code) 8 to access the software in the future. During this setup procedure, the user also enters the user account details 9 preferably including the user's name, mailing address, electronic mail (e-mail) address, and the communication port to which the modem of the user's computer 2 is connected.

At any time after installing the CYBANK system software 6 on the user's computer 2, the user can add electronic funds to his CYBANK system account by one of two methods. The first method relies on the telecommunications services provider to bill the user for the creation of the electronic funds and the second method relies on a credit card company to bill the user for the creation of the electronic funds. The first method is illustrated in Figs. 3 and 3a.

In Fig. 3, the user selects an option displayed on the CYBANK system software 6 menu 10 entitled "Create Phone Cash" 12. This selection causes the CYBANK system software 6 to dial, via a modem or the like, a predetermined "pay per call" number as provided by a prior agreement between the telecommunications services provider and the electronic bank such as described above. Upon dialling this "pay per call" telephone number, a connection 14 is established between the telecommunications services provider's computer 16 and the user's computer 2. Once the connection 14 has been established, the telecommunications services provider's computer 16 debits the user's telephone account 18 in the amount of the phone cash requested and the CYBANK system software 6 then terminates the connection 14.

The telecommunications services provider's computer 16 then transmits 22 encrypted data to the electronic bank's computer 24, allowing the electronic bank's computer 24 to credit the user's electronic bank account 26 with the amount of phone cash created. The credit to the user's electronic

- 15 -

bank account 26 is in the form of a unique serial number or cash key 20 in an encrypted form based on the user's hardware setup using such details as modem number, telephone number, and hard disk number, based on the amount of the phone cash, and based on and embedding within the cash key 20 and user ID 7 and the user PIN code 8. This cash key 20 can be thought of as a unique electronic "bank serial number" for the electronic funds created.

Fig. 3a illustrates the billing and payment process necessary to finance the creation of the phone cash. After the phone cash has been created as described in conjunction with Fig. 3, the telecommunications services provider 13, as part of its regular bill to the user 15, bills 17 the user 15 an amount equal to the amount of phone cash created. Assuming the user 15 subsequently pays 19 the telecommunications services provider 13 an amount equal to the amount of phone cash created, the telecommunications services provider 13 deducts a portion of the amount paid in accordance with a previously existing agreement between the telecommunications services provider 13 and the electronic bank described above. The remainder of the amount paid is remitted 21 by the telecommunications services provider 13 to the electronic bank 23.

The method of receiving electronic cash by credit card is illustrated in Fig. 4. In this method, a user uses his CYBANK system software 6 to select the option of "Order Credit Card Cash" 30 from the CYBANK system software 6 menu 10. The user must enter the necessary credit card information, for example, credit card number, name as it appears on the credit card, and expiration date, and the amount of credit card cash requested. This information is then encrypted by the CYBANK system software 6 along with the user's ID 7, the user's PIN code 8, and details regarding the user's hardware setup necessary for the creation of a cash key 20 as described above with reference to Fig. 3 and transmitted 32 to the electronic bank's computer 24. The electronic bank's computer 24 then transmits 34 in encrypted form the necessary credit card

- 16 -

information and the amount requested to the credit card company's computer 36. The credit card company's computer 36 will debit the user's credit card account 38 in the amount of credit card cash requested upon approving the requested charge and will transmit 40 notice of such approval to the electronic bank's computer 24. The electronic bank's computer 24 will credit the user's electronic bank account 26 with the requested amount by creating a cash key 20 as described above with reference to Fig. 3, after receiving notice of approval of the requested charge from the credit card company's computer 36.

Fig. 4a illustrates the billing and payment process necessary to finance the creation of the credit card cash. After the credit card cash has been created as described in conjunction with Fib. 4, the credit card company 31, as part of its regular bill to the user 15, bills 33 the user 15 an amount equal to the amount of credit card cash created. Assuming the user 15 subsequently pays 35 the credit card company 31 an amount equal to the amount of credit card cash created, the credit card company 31 deducts a portion of the amount paid in accordance with a previously existing agreement between the credit card company 31 and the electronic bank 23. The remainder of the amount paid is remitted 37 by the credit card company 31 to the electronic bank 23.

Referring back to Fig. 1, the merchant, through the merchant's computer 3, must be willing to accept "credits" from users as created by the CYBANK software. The merchants can include any merchant wishing to supply goods or services; for example, the merchant can be an information provider, such as the provider of publications or magazines in electronic form. Thus, the merchant could be the owner of the "New York Times" wishing to obtain monetary value for providing users with copies of their newspaper or other publications. It should be noted that the cost of reproducing an entire edition of the New York Times via the Internet is minimal in comparison to the potential returns. However, at present, the lack of a guaranteed return restricts such a merchant to

- 17 -

providing "tidbit" information only. The merchant's "home page", constructed in HTML (Hypertext Markup Language) or the like can provide for an icon for a user accessing the home page such that clicking on the icon represents agreement to spend an amount in credit with the merchant in return for the provision of the services such as an electronic copy of the newspaper.

A user of the CYBANK system can spend any partial amount of the electronic funds credited to the user's electronic bank account 26 and retain the remaining credit. This permits merchants to price their products in a flexible manner.

Specifically, according to the preferred embodiment, the merchant will first become a participant in the CYBANK system by accessing the CYBANK system web page 5 (see Fig. 2) and following the procedure outlined below with reference to Fig. 5. Alternatively, the merchant may first download from the Internet CYBANK system software 6 identical to that downloaded by the user which also contains the functionality needed for the merchant to use the CYBANK system.

Fig. 5 shows the steps the merchant and CYBANK must take to participate in selling goods or services through the CYBANK system. In step 50, the merchant preferably uses the CYBANK system web page 5 (see Fig. 2) or, alternatively, the CYBANK system software 6 to obtain a merchant ID code from the electronic bank 23. If the CYBANK system software 6 is used by the merchant, the merchant fills out an application for a merchant ID code, the application is e-mailed to the electronic bank 23, and the electronic bank 23 e-mails back to the merchant a merchant ID code if the merchant's application is approved. In step 52, preferably CYBANK creates or, alternatively, the merchant uses the CYBANK system software 6 to create encrypted product keys which preferably comprise the merchant's ID code, a brief description of the product or service, and the price charged.

CYBANK or the merchant then must make various amendments to his web site to sell his goods or services on the CYBANK system. In step 54, preferably CYBANK or, alternatively, the

- 18 -

merchant creates a payment page for the user to enter necessary payment details and to control the payment process and links the payment page to the merchant's web site main page. In step 56, CYBANK, preferably, or, alternatively, the merchant places the encrypted product key in a file which is linked to the merchant's payment page. In step 58, the merchant creates a web page to be displayed if payment by a user is accepted by the electronic bank ("payment accepted" web page) and links it to his payment page. Finally, in step 62 the document to be displayed if payment from a user is accepted is linked to the "payment accepted" web page. It should be noted that step 62 should normally only be necessary if the merchant is selling information to be displayed on the Internet, rather than other services or goods. Examples of web site main pages, payment pages, "payment accepted" web pages, and a document to be displayed if payment from a user is accepted are set forth in the description below.

Preferably, a centralized directory of all merchants participating in the CYBANK system will be set up on the Internet to make it easy for users desiring to purchase goods or services using the CYBANK system to locate the web sites of such merchants. Alternatively, a user will search on the Internet for web sites of merchants not in such a directory who participate in the CYBANK system using a web browser or other methods well known in the art.

Figs. 6 and 6a reproduce the web site main pages of hypothetical merchants participating in the CYBANK system. Fig. 6 shows the web site main page of a hypothetical merchant selling current information on stock quotations. Fig. 6a shows the web site main page of a hypothetical merchant selling games. Both Fig. 6 and Fig. 6a display a "button" 70, 72 for the user to "click" on with a mouse or other pointing instrument. When the button 70, 72 is clicked, the respective payment pages for each merchant are displayed.

Fig. 7 shows the payment page of the merchant selling stock quotations and Fig. 7a shows the payment page of the merchant selling games. Both Fig. 7 and Fig. 7a show an

- 19 -

encrypted product key 80, 90 as previously described above. Both product key boxes are shown in dotted lines to indicate that they are in separate files linked to each payment page and are invisible to the user. To purchase the item(s) in connection with which the payment pages are displayed, the particular payment page is saved by the CYBANK system software 6 on the user's computer 2. This software extracts the information in the product key 80, 90 and uses it to generate a cash key 20, by a process analogous to that described with reference to the cash key 20 shown in Fig. 3, for the purchase, provided that the cash key(s) 20 presently in the user's electronic bank account 26 are sufficient to cover the user's purchase.

Once the CYBANK system software has generated a cash key 20, the user will enter the user's PIN code 8 in the CYBANK password box 84. In addition, in Fig. 7a since the purchase of goods is involved, the user will enter various details allowing the merchant to subsequently deliver the goods, for example, the user's name in a customer name box 96, the user's e-mail address in a customer e-mail address box 98, the user's telephone number in a telephone box 100, the user's delivery address in a delivery address box 102, the user's state in a state box 104, the user's zip code/post code in a zip code/post code box 106, the product description/s in a product description/s box 108, and the date in a today's date box 110.

After all relevant information has been entered on the payment page, the user will click on a "submit" button 86 to submit the payment to the electronic bank for approval. The process of approval of the payment by the electronic bank is illustrated in Fig. 8. The user's computer will submit in encrypted form the CYBANK cash key and password of the user to the electronic bank 120. The electronic bank software will determine whether the password is embedded within the CYBANK cash key 122. If the password is embedded within the CYBANK cash key, the electronic bank approves the payment 124. If the password is not embedded within the CYBANK serial number, the electronic bank disapproves the payment 126. After

- 20 -

determining whether the payment should be approved or disapproved, the electronic bank notifies the merchant's web site of the decision 128.

Fig. 8a illustrates the credit and debit of electronic funds as a result of the approval of a payment from a user to a merchant by the electronic bank. The electronic bank's computer 24 will debit the user's electronic bank account 26 by the amount of the payment by creating a cash key 20, by a process analogous to that described with reference to the cash key 20 shown in Fig. 3, representing the current balance of the user's funds after the payment is deducted. The electronic bank's computer 24 will also credit the merchant's electronic bank account 132 by the amount of the payment by creating a cash key 20 representing the amount of the payment by a process analogous to that described with reference to the cash key 20 shown in Fig. 3.

Figs. 9 and 9a show examples of "payment accepted" web pages. These web pages will be displayed to the user if the electronic bank approves of the payment by the user to the merchant (see Fig. 8, 124). Fig. 9 shows the "payment accepted" web page for the merchant selling stock quotations and Fig. 9b shows the "payment accepted" web page for the merchant selling games. In the case of Fig. 9, there is a "display quotes" button 140 which displays the information purchased when clicked. In the case of Fig. 9b, the "payment accepted" web page simply notifies the user that the shipment process of the goods ordered has begun. As an optional feature, a "let's play more games" button 142 is provided to allow a user to return to the main page of the web site (see Fig. 6a) quickly.

Fig. 10 partially reproduces the document that will be displayed at the web site of the merchant selling stock quotations if the "display quotes" button the "payment accepted" web page (see Fig. 9, 140) is clicked.

Figs. 11 and 11a show the process whereby the merchant is paid in currency by the electronic bank for a purchase by a user. At some time subsequent to a purchase by a user over

- 21 -

the Internet, the electronic bank 23 will pay 150 the merchant commercial transactions taking place on the Internet 4, the merchant has the substantial advantage in that it does not have to pay for costs such as distribution, leasing or premises, sales staff, and overhead.

Further, the electronic bank 23 receives funds from the telecommunications services provider 13 which has billed 17 the user 15 (see Fig. 3a) or from the credit card company 31 which has billed 33 the user 15 (se Fig. 4a), the user having incurred the bill by creating phone cash or credit card cash. The telecommunications services provider 13 or credit card company 31 deducts a commission or fee prior to the transfer of the remainder of the funds received to the electronic bank 23 as previously described. This fee, if less than the discount agreed upon between the electronic bank and the merchant, results in a profit for the electronic bank.

The merchant 152 can also utilize a cash key 20 received as a result of a purchase by a user to conduct further commerce on the network. The discount agreement between the electronic bank 23 and the merchant 152 results in a positive incentive for the merchant 152 to utilize the credit amount in other transactions on the Internet.

It should be noted that the references to the Internet herein are exemplary only and that the CYBANK system may also be implemented on any other computer network where the purchase and sale of goods or services can be effected.

While a preferred embodiment of the present invention has been described in detail, various modifications, alterations, and changes may be made without departing from the spirit and scope of the present invention as defined in the following claims.

- 22 -

What is claimed is:

1. A method of employing one or more networks of computers, said method including:

5 creating with respect to a computer of a user connected to said one or more networks, a first data structure corresponding at least in part to a first amount of monetary funds;

10 debiting an account of said user with a service provider in a second amount related to said first amount of monetary funds;

 crediting an account of said user with an electronic bank in a third amount related to said first amount of monetary funds; and

15 said user purchasing via said one or more networks using at least a part of said first amount of monetary funds, an item offered for sale by a first merchant via a computer connected to said one or more networks, said merchant participating in said method.

20 2. The method claimed in claim 1, wherein said data structure includes a unique transaction identifier and said electronic bank account is credited by storing said unique transaction identifier in said account.

25 3. The method claimed in claim 2, wherein said unique transaction identifier includes a serial number derived at least in part from one or more characteristics of said users hardware.

 4. The method claimed in any one of the preceding claims, wherein said first, second and third amounts are equal.

30 5. The method claimed in any one of claims 1 to 4, wherein said service provider is a telecommunications services provider, said user being provided telecommunications services by said telecommunications service provider.

 6. The method claimed in any one of claims 1 to 4, wherein said service provider is a credit card service provider.

35 7. The method claimed in claim 5, wherein said users account with said service provider is debited via a "pay per call" telephone number.

- 23 -

8. The method claimed in claim 7, wherein said user's computer is connected to said service provider via a modem which dials said "pay per call number".

5 9. The method claimed in claim 6, further including the step of electronically transferring credit card information from said computer of said user to a computer of said credit card service provider.

10. The method claimed in any one of the preceding claims and further including:

10 said service provider billing said user for said second amount of monetary funds, and paying to said electronic bank a sum of money related to said second amount.

11. The method claimed in claim 10, wherein said sum of money paid to said electronic bank is equal to said second amount of
15 monetary funds less a fee charged by said service provider to said electronic bank.

12. The method claimed in claim 1, wherein said step of said user purchasing said item further includes:

20 reading a product key indicative of said item offered for sale by said merchant via said computer of said user, said product key being present at a web site of said merchant;

using said product key to create a purchase identifier; and submitting said purchase identifier to said electronic bank for approval of said purchase.

25 13. The method claimed in claim 12, wherein said purchase identifier is derived at least in part from the price of said item purchased.

14. The method of claim 13, wherein said purchase identifier includes a serial number derived in part from one or more
30 characteristics of said user's hardware.

15. The method claimed in claim 13 or 14, wherein upon approval for said purchase being given by said electronic bank, said step of purchasing said at least one item further comprising the steps of:

35 creating a sale identifier indicative of said price of said item,

creating a user account balance identifier indicative of

- 24 -

a balance remaining in said account of said user with said electronic bank after deducting an amount related to said price from an amount in said account, said account balance identifier being derived at least in part from one or more characteristics of said user's hardware;

crediting an account of said first merchant with said electronic bank in an amount related to said price by storing said sale identifier in said account of said first merchant with said electronic bank; and

debiting said account of said user with said electronic bank in an amount related to said price by storing said user account balance identifier in said account of said user with said electronic bank.

16. The method claimed in claim 15, wherein said amount deducted from said account of said user, said amount credited to the account of said merchant and said amount debited to the account of said user are equal to said price.

17. The method claimed in claim 15 or 16, wherein said sale identifier and said user account balance identifier are serial numbers.

18. The method claimed in claim 1, further including the step of said electronic bank paying a sum of money to said first merchant equal to the price of said item purchased from said first merchant less a fee charged by said electronic bank to said first merchant.

19. The method claimed in claim 18, further including the steps of:

creating a merchant account balance identifier indicative of a balance remaining in said account of said first merchant with said electronic bank after deducting an amount equal to said price of said item purchased from an amount in said account, said merchant account balance identifier being derived at least in part from one or more characteristics of said first merchants hardware and

debiting an account of said first merchant with said electronic bank in an amount equal to said price by storing said merchant account balance identifier in said account of

- 25 -

said first merchant with said electronic bank.

20. The method claimed in claim 1, further including:

said first merchant obtaining a merchant identification code from said electronic bank;

5 said electronic bank creating a product key describing said item offered for sale;

said electronic bank creating a payment page, said payment page being linked to a web site main page of said first merchant;

10 said electronic bank linking said product key to said payment page; and

said first merchant creating a "payment accepted" web page, said "payment accepted" web page being linked to said payment page.

15 21. The method claimed in claim 20, further including said first merchant linking a document to be displayed if payment by said user is accepted by said electronic bank to said "payment accepted" web page.

20 22. The method claimed in claim 20, wherein said product key includes said merchant identification code, an indicator of the description of said item offered for sale, and an indicator of the price of said item offered for sale.

23. The method claimed in claim 3, wherein said one or more one hardware characteristics includes a hard disk number.

25 24. The method claimed in claim 3, wherein said one or more hardware characteristics includes a modem number.

25. The method claimed in claim 3, wherein said one or more hardware characteristics includes a telephone number to contact said computer of said user.

30 26. The method claimed in claim 1, further including the step of distributing software for down loading onto said computer of said user, said software enabling said computer of said user to perform at least the portion of the method claimed in claim 1 necessary to be performed by said computer of said user for said user to participate in the method claimed in claim 1.

27. The method claimed in claim 1, further including the step

- 26 -

of distributing software so that said first merchant is able to down load said software onto said computer of said first merchant, said software enabling said computer of said first merchant to perform at least the portion of the method claimed in claim 1 necessary to be performed by said computer of said first merchant for said first merchant to participate in the method claimed in claim 1.

28. The method claimed in claim 3, wherein said first serial number is in an encrypted form.

29. The method claimed in claim 26, wherein said software is assigned a unique user software identifier, derived at least in part from one or more characteristics of said users hardware.

30. The method claimed in claim 17, further including the step of said user selecting a password to enable said user to access said software.

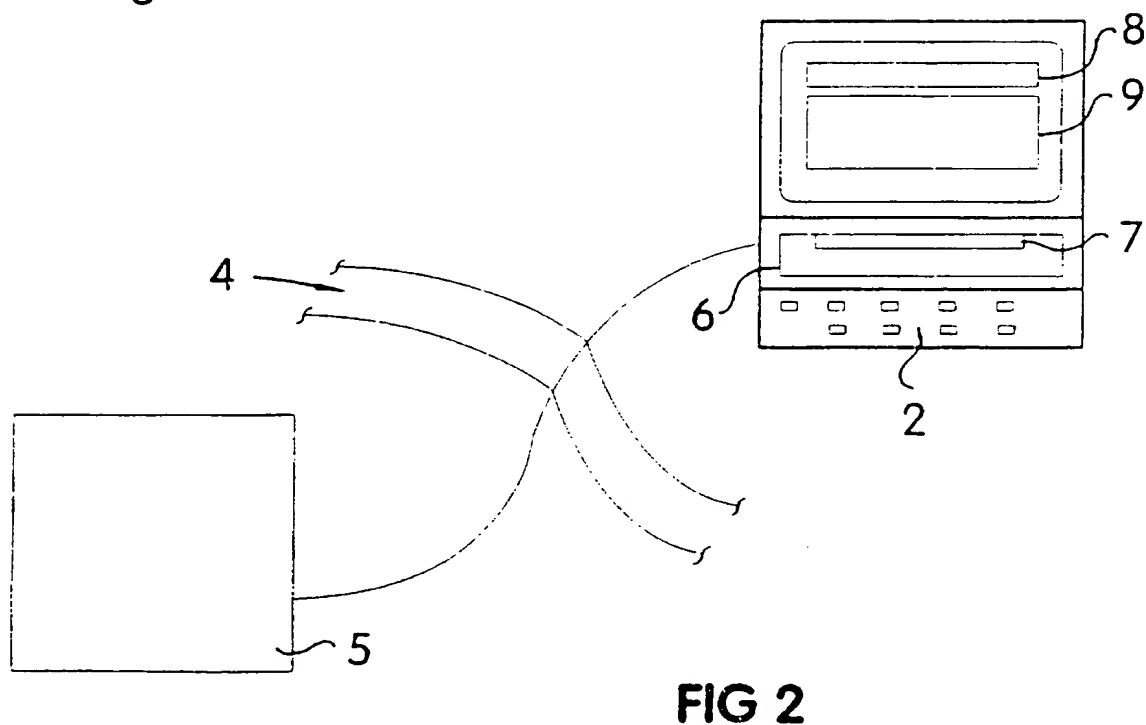
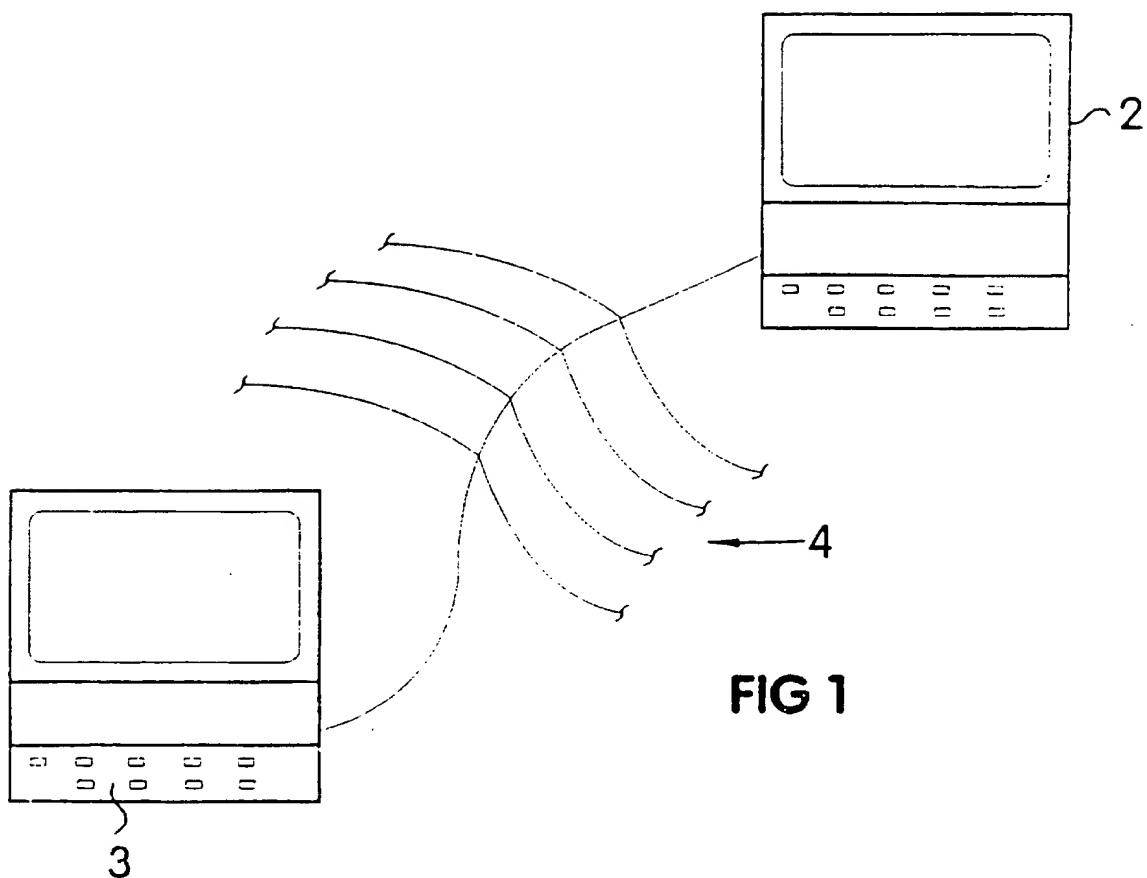
31. The method claimed in claim 18, wherein said software is assigned a unique merchant software identifier derived at least in part from one or more characteristics of said first merchants hardware.

32. The method claimed in claim 18, further including the step of said first merchant selecting a password to enable said first merchant to access said software.

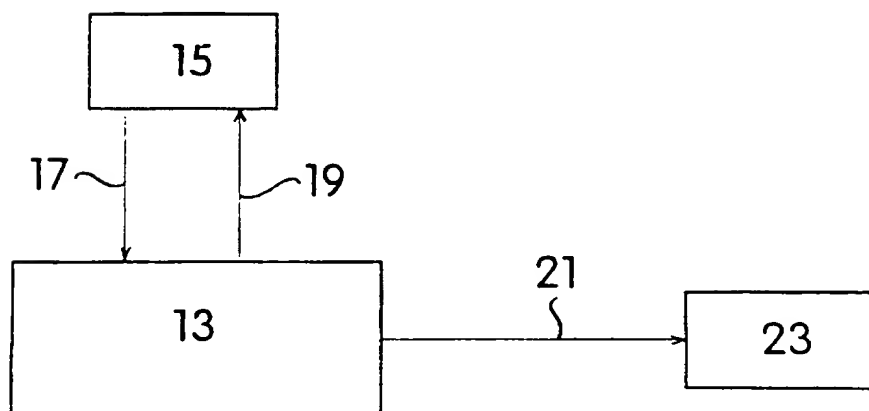
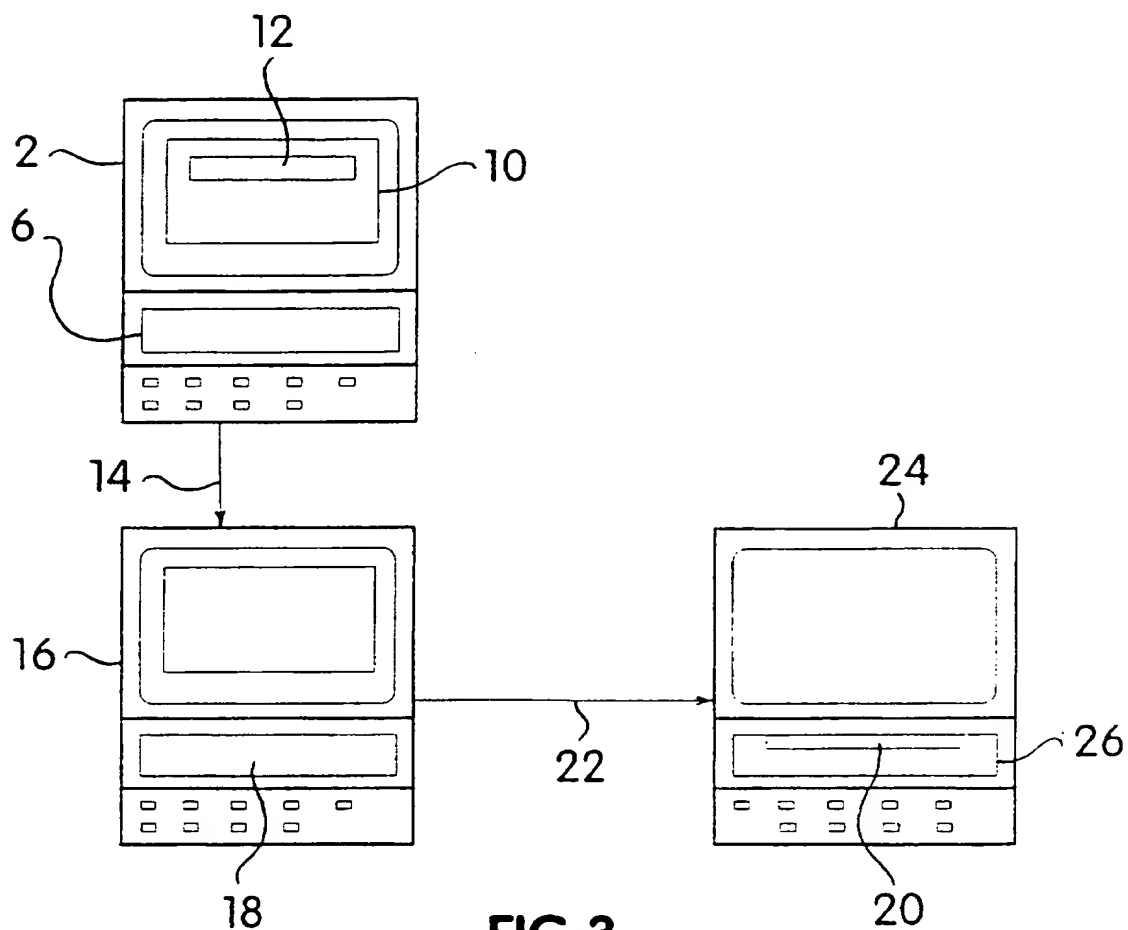
33. The method claimed in claim 1, further including the step of said first merchant purchasing over said one or more networks an item offered for sale by a second merchant possessing at least one computer connected to said one or more networks, said second merchant participating in said method.

34. The method claimed in claim 1, wherein said at least one network includes the Internet.

1/6



SUBSTITUTE SHEET (RULE 26)



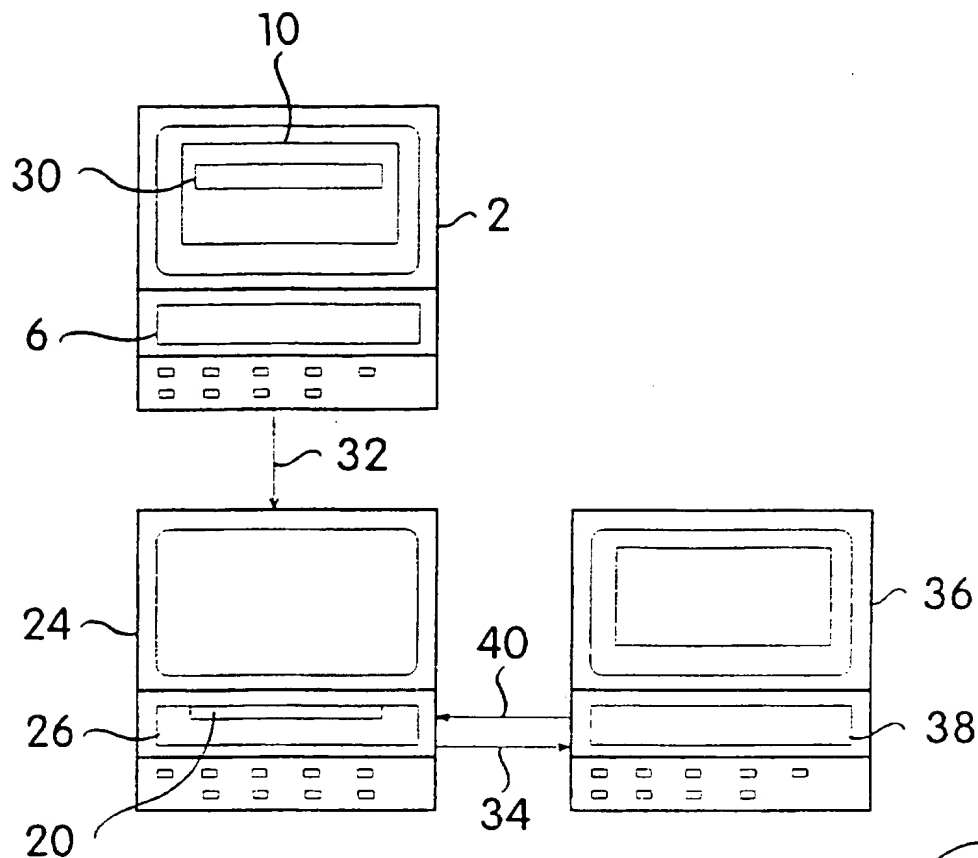


FIG 4

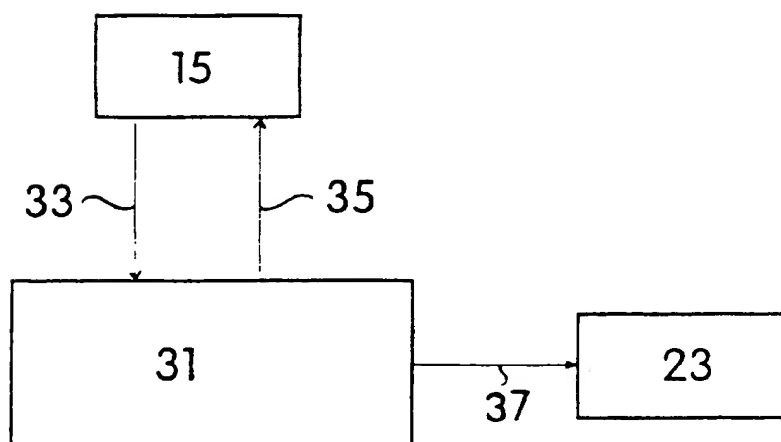


FIG 4a

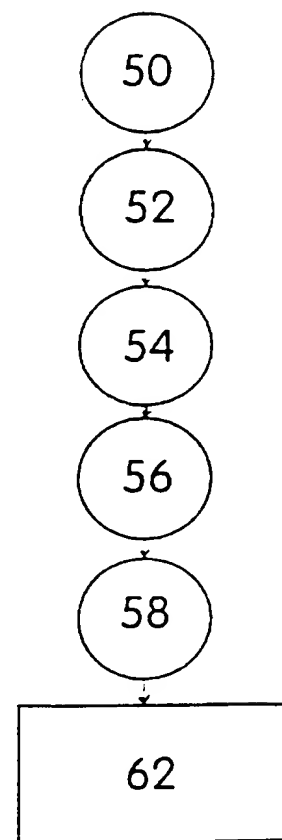


FIG 5

4/6

Welcome to New York Stock Exchange
Quotes Inc. (NYSE, INC)

For fifty cents, we will display all the stocks
listed on the NYSE and their
up - to - the - second quotes.

To display the quotes, click on this button

70

FIG 6

Welcome to Games
Unlimited! To see our
inventory, click on the
button below

72

FIG 6a

To display the quotes,
enter your CYBANK
password:

84

Then click on the
button below to have
your payment approved:

86

80

FIG 7

PRODUCT CODE	DESCRIPTION	PRICE (US\$)
GM01	"Monopoly"	10.95
GM02	"Clue"	12.95
GM03	"Risk"	13.95

Enter the following information below:

84	106
96	92
98	108
100	94
102	110
104	

Click on the Button below to have your payment approved:

86
90

FIG 7a

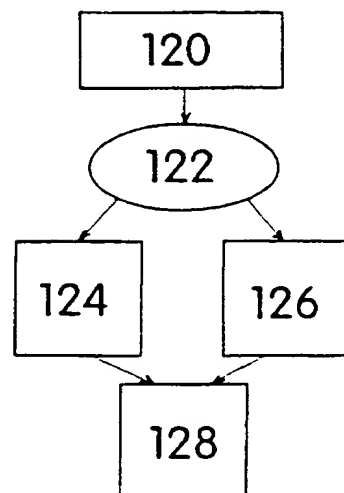


FIG 8

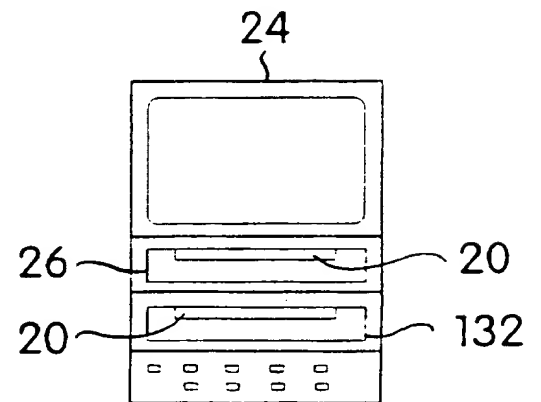


FIG 8a

Your payment was approved.
Click on the button below to
display the quotes:

140

FIG 9

Your payment was approved! Games Unlimited will arrange for delivery of your games and notify you of their shipment by E-mail within 24 hours.
To return to main page of web site
PRESS:

142

FIG 9a

Stock	Bid	Ask	High	Low	Average	Shares Traded

FIG 10

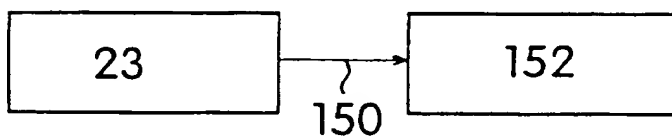


FIG 11

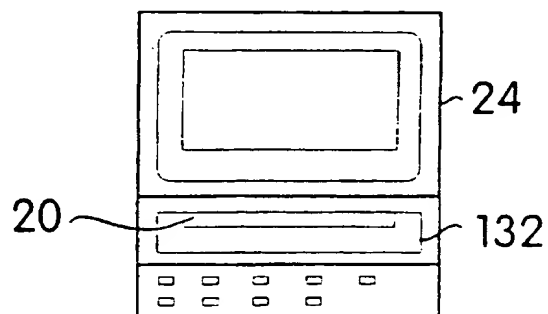


FIG 11a

SUBSTITUTE SHEET (RULE 26)

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/AU 96/00739**A. CLASSIFICATION OF SUBJECT MATTER**Int Cl⁶: G06F 17/60; G07F 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC⁵ and IPC⁶: as above and G06FDocumentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: as aboveElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT, JAPIO, COMPENDEX**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	EP 0725376 (SONY) 7 August 1996 Column 3 line 15 - column 5 line 6, column 4 lines 13-36	1,6,9,10,26
X	IEEE PERSONAL COMMUNICATIONS, Vol. 2, No. 4, August 1995, M. SIRBU and J.D. TYGAR 'NETBILL: AN INTERNET COMMERCE SYSTEM OPTIMIZED FOR NETWORK DELIVERED SERVICES' pages 34-39. See page 37 column 1 paragraph 6 - column 2 paragraph 1, column 2 paragraph 4 - page 38 column 1 paragraph 3	1,2,6

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
12 February 1997

Date of mailing of the international search report

20.02.97

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INTERNATIONAL SEARCH REPORT

International Application No.

PCT/AU 96/00739

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94/01825 (NORTHWEST STARSCAN) 20 January 1994 See page 3 lines 13-23, page 5 line 9 - page 6 line 4	1,6,9,10,26
P,A	WO 96/08783 (FIRST VIRTUAL HOLDINGS) 21 March 1996 See whole document	1-34
A	DIGEST OF PAPERS - COMPCON - IEEE COMPUTER SOCIETY INTERNATIONAL CONFERENCE 1995, IEEE, PISCATAWAY, NJ, USA, pages 26-31, D.K. GIFFORD et al. 'PAYEMENT SWITCHES FOR OPEN NETWORKS'. See whole document	1-34

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No.
PCT/AU 96/00739

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member	
EP	0725376	JP	8214281
WO	94/01825	AU	46677/93
WO	96/08783	AU	36309/95

END OF ANNEX